

# Introducing IANA

Baltic Region and Eastern Europe International Seminar

*The Internet & the post-WSIS environment: enhancing dialogue among the stakeholders*

Riga 2006

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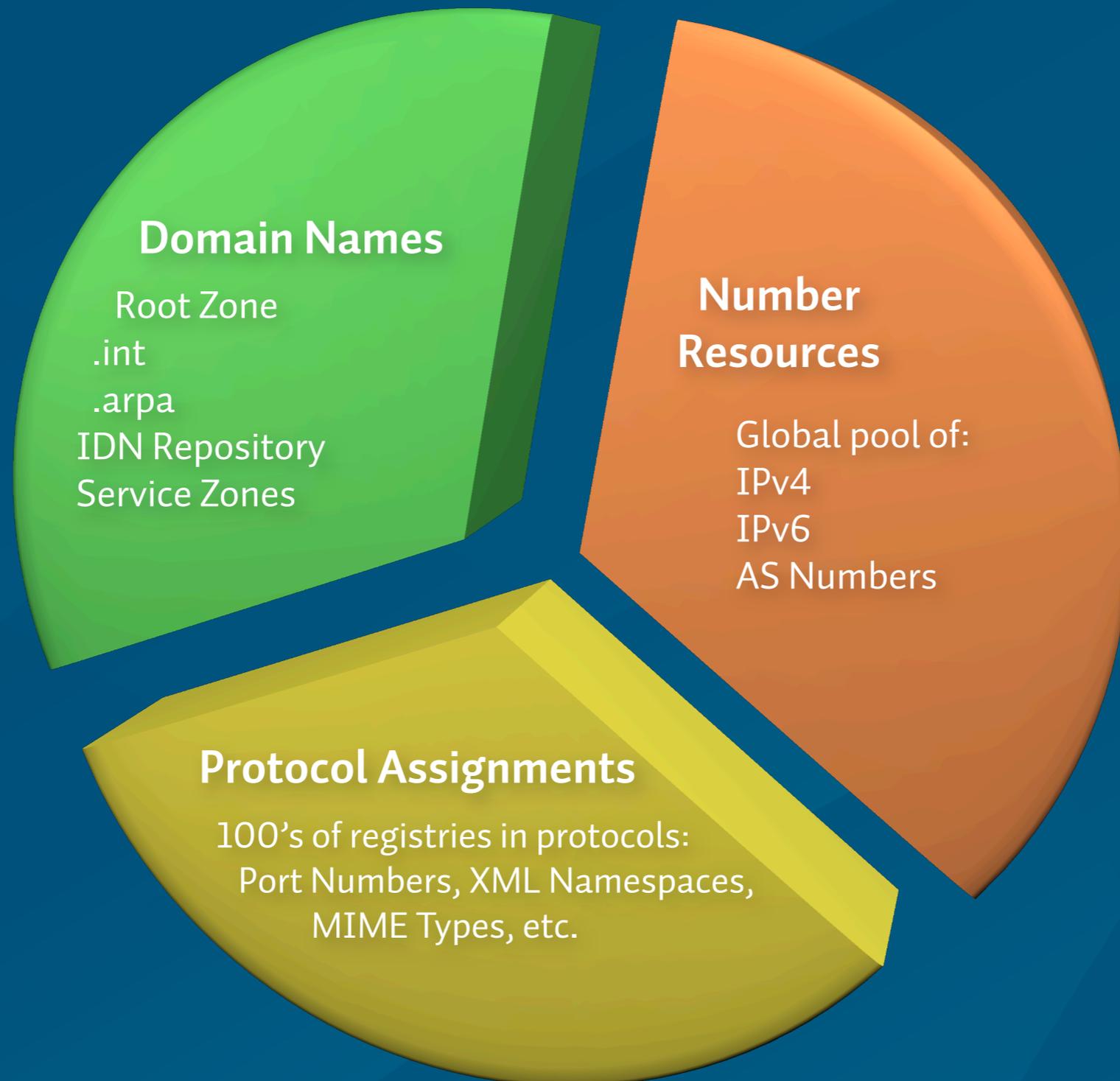
Internet Assigned Numbers Authority



# What is IANA?

- ▶ the “Internet Assigned Numbers Authority”
- ▶ Quite likely the oldest Internet institution
  - ▶ first documented in 1972
- ▶ Responsible for global coordination of the Internet’s unique names and numbers
- ▶ Since 1998, a function of ICANN
  - ▶ Previously operated in academia under US Government research contracts.

# Areas of Responsibility



# Discussion points today:

- ▶ IPv4-to-IPv6 Migration
- ▶ ccTLD Matters
  - ▶ IANA's role and responsibilities
  - ▶ How the operator of a ccTLD is changed (“redelegation”)
  - ▶ ccTLD's role and responsibilities

# What are IP addresses?

- ▶ IP addresses are unique numbers assigned to each device (computer, etc.) on the Internet
- ▶ Used for the internal routing of information, usually unseen by end users.
- ▶ Domain names are usually used as a more memorable way to connect to computers:

**icann.org**

*(domain name)*

**192.0.34.163**

*(IP address)*

# Regular IP addresses are running out

- ▶ Current “IPv4” addresses devised in 1970’s didn’t envision such substantial usage.
  - ▶ Estimates of exhaustion around 5-10 years
- ▶ IPv6 is a new protocol with much more address space
  - ▶  $2^{32} \rightarrow 2^{128}$  numbers ( $2^{96}$ × more addresses)
  - ▶  $2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$
- ▶ IPv6 requires commitment to deploy
  - ▶ To fully switch over to new system, all systems must be upgraded to use the new number system.

# Domain Name System

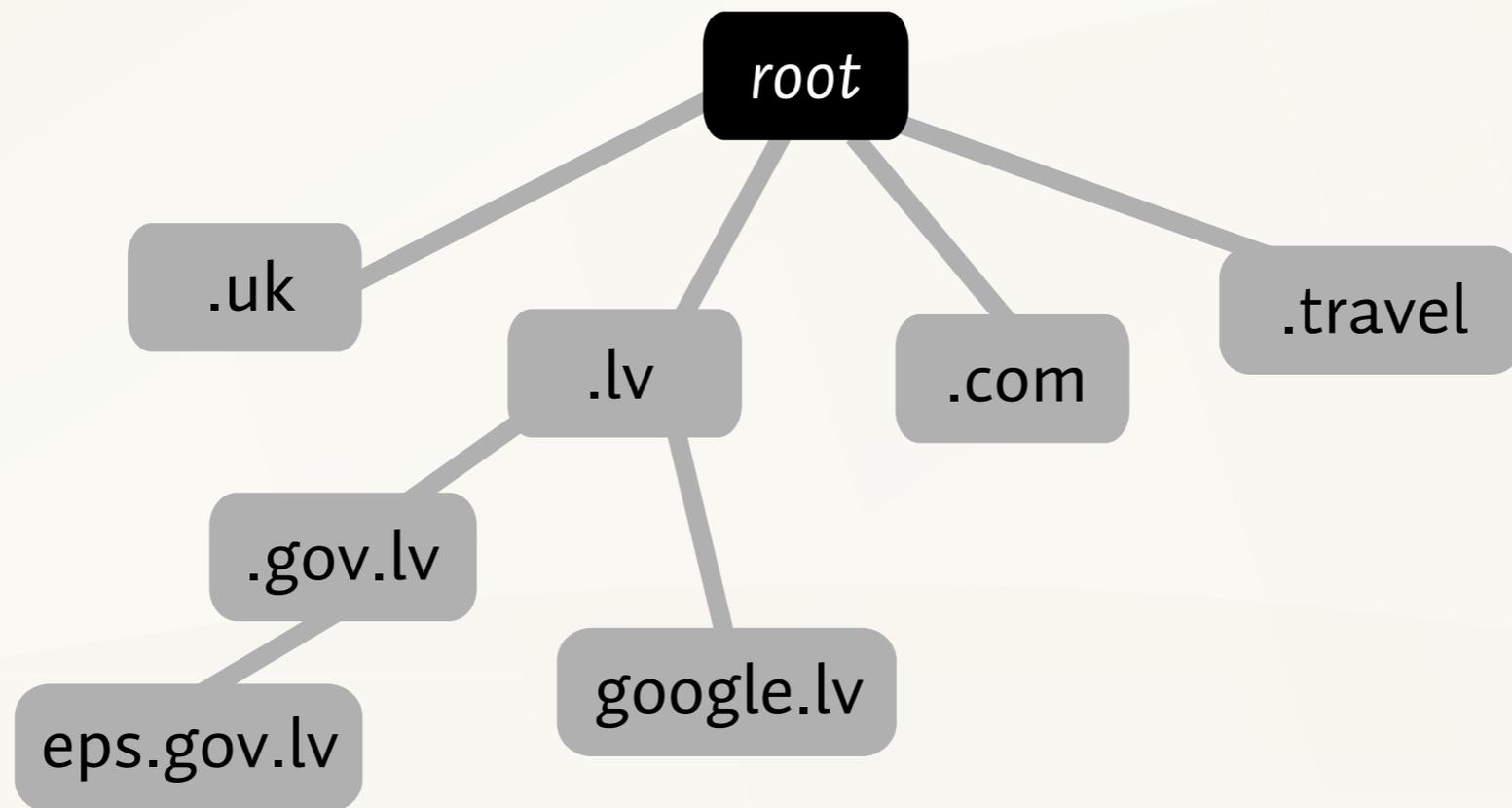
- ▶ The easier to remember identifiers for services on the Internet.
- ▶ Comprised of a hierarchical taxonomy separated by dots.
- ▶ The system internally converts the names into the raw numbers that computers need.

**icann.org**

*(domain name)*

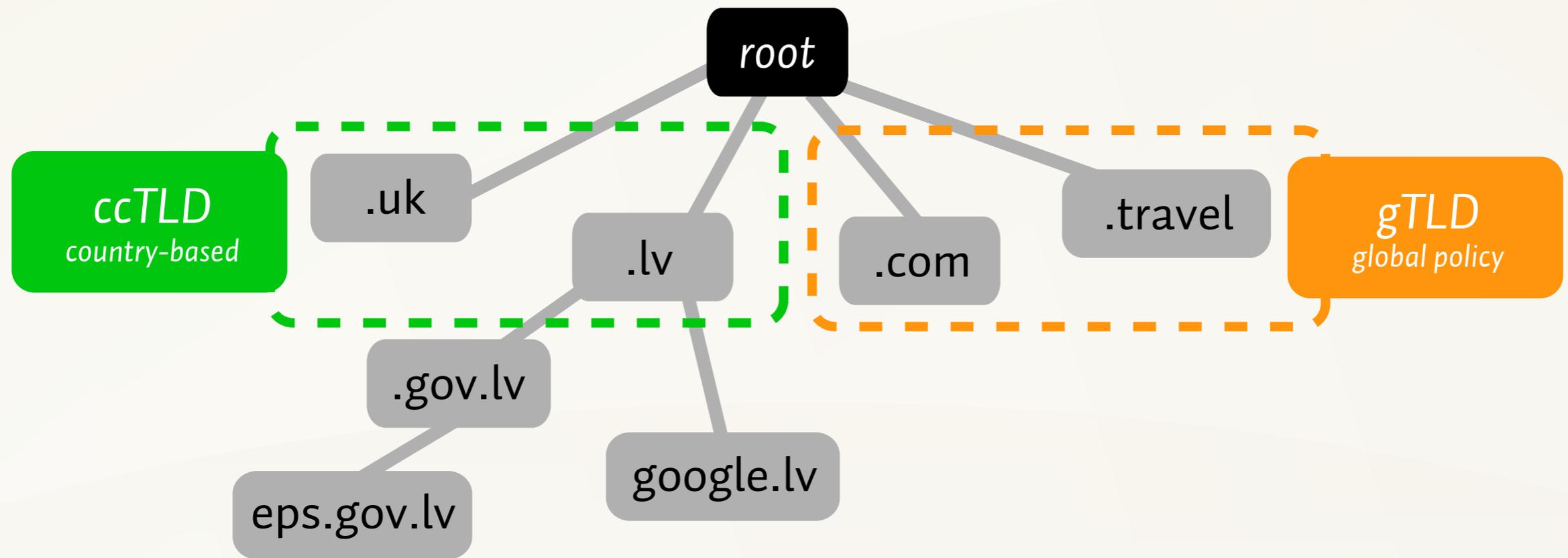
**192.0.34.163**

*(IP address)*



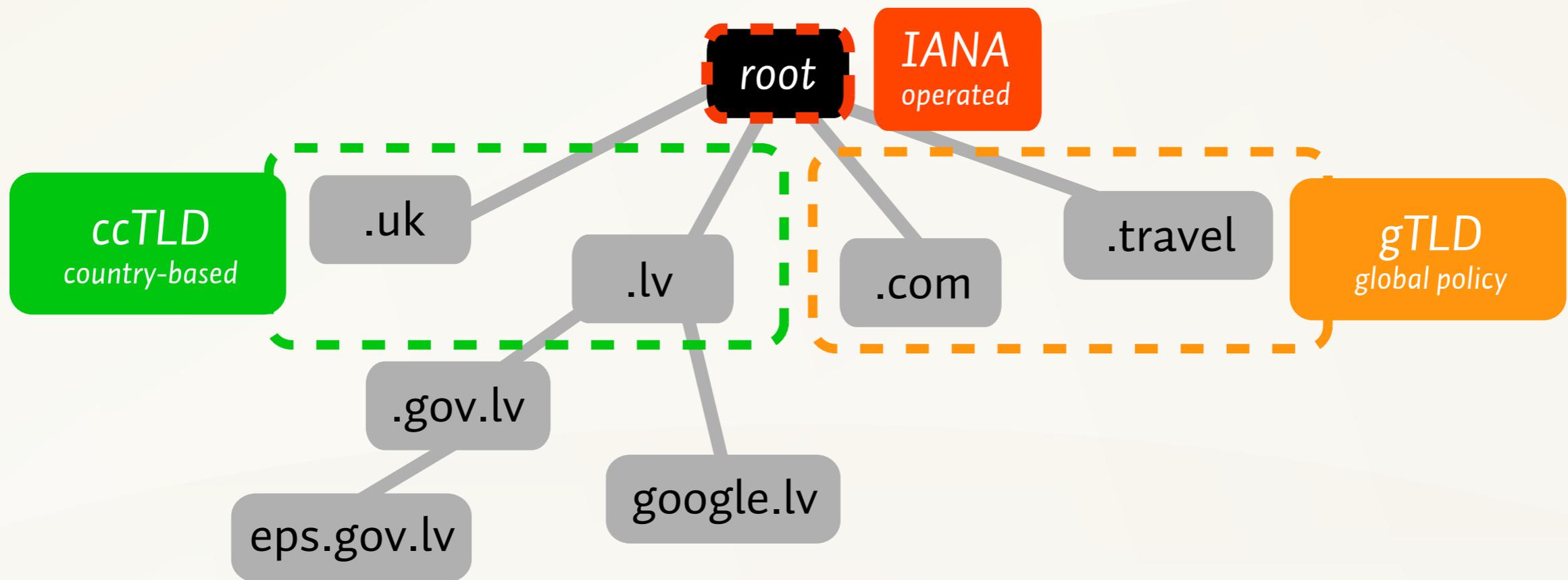
## DNS structure

- ▶ Delegations are made down a “tree”.
- ▶  $root \rightarrow .lv \rightarrow .gov.lv \rightarrow eps.gov.lv$



# DNS structure

- ▶ “top-level domains” can be divided into:
  - ▶ country-codes: local policy, local law, subsidiarity
  - ▶ global: worldwide use, ICANN policy



# DNS structure

- ▶ IANA operates the root
  - ▶ delegates operators of TLDs (incl. ccTLDs)

# Country-code top-level domains (ccTLDs)

- ▶ ISO 3166 standard nominates two-letter codes for countries and autonomous regions (as defined by UN)
- ▶ IANA will assigned an operator of a ccTLD for the local Internet community in a particular country.
  - ▶ initial request is a “delegation”, changing operators of an existing code is a “redelegation”.
- ▶ IANA doesn't take an ongoing role in operating the domain, simply appoints the operator. Local interests should decide how the domain is run within country.

# (Re)delegation Procedure

- ▶ Request for (re)delegation is sent to IANA
- ▶ IANA performs evaluation
  - ▶ consultations with:
    - ▶ requestor to understand situation, seek additional documentation
    - ▶ current operators (if they exist) to determine consent
    - ▶ local Internet actors to confirm assertions on LIC support
    - ▶ governments to identify support
    - ▶ ICANN staff who have insight into local situation
- ▶ If assessed to proceed, considered by ICANN board
- ▶ Upon approval, implement normally (incl. USDOC, VeriSign)
- ▶ Report published on website

# Key criteria for ccTLD operator

## 1. Operator must show operational and technical skills

Must be able to operate the TLD in an effective and proper manner.

## 2. Operator must be in country

Allows the operation to be subject to local law.

## 3. Operator must treat LIC fair and equitably

The operator, for example, can't discriminate within the local Internet community on who it may provide service for.

## 4. Operator must demonstrate community/government support.

Operator needs to show that it has reasonable support to operate the resource.

*Ability to meet these criteria is formally assessed in the event of a delegation or redelegation request.*



# What ccTLD operators do

- ▶ Operate the ccTLD with policy in the public interest of the territory concerned
  - ▶ local Internet community
  - ▶ local government
  - ▶ etc.
- ▶ Operate a technically stable service
  - ▶ poor setup = unreliable domain service = “broken” Internet
  - ▶ damage of bad setup affects outside country as well!
- ▶ Liaise with IANA to ensure their details are up to date
  - ▶ Record staff changes etc. with IANA as appropriate
  - ▶ ensure technical data is properly communicated
- ▶ Participate in ICANN, other fora, to develop global policy and best practice

# Summary

- ▶ ccTLDs are operated in the public interest, within countries, involving local Internet community and local government.
- ▶ IANA's role is ensuring it is operated by a responsible operator that the community agrees is appropriate.
- ▶ ccTLD operators and IANA community on an ongoing basis to ensure technical data is properly in sync.
- ▶ It is important that ccTLD operator details are kept up to date with IANA to ensure Internet stability.

# Thank you for your attention!

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